



C&D Waste Diversion and Reuse

Meeting Your Executive Order 13514 Goals Best Practices, Tools, and Resources

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Federal Requirements

- Executive Order (EO) 13514
 - 2(e)(iii): Promote pollution prevention and eliminate waste by diverting at least 50 percent of construction and demolition (C&D) materials and debris by the end of fiscal year (FY) 2015
- Guiding Principles for High-Performance Sustainable Buildings
 - During a project's planning stage, identify local recycling and salvage operations that could process site-related C&D materials
 - During construction, recycle or salvage at least 50 percent of the non-hazardous construction, demolition, and land clearing materials, excluding soil, where markets or onsite recycling opportunities exist
 - Provide salvage, reuse, and recycling services for waste generated from major renovations, where markets or onsite recycling opportunities exist



C&D Waste Diversion and Recycling

Salvaging, reusing, and recycling C&D material is required for all federal renovation, demolition, and construction projects. To get it done:

- Get your documents right: Architecture and Engineering (A&E) Statement of Work, Construction Specifications, Solicitation for Offers language
- Clearly delineate responsible parties for C&D data collection and reporting: A&E, LEED® Consultant, Owner, Contractor
- Develop a construction waste management plan
- Instruct onsite contractors and subcontractors
- Establish and clearly identify onsite C&D material collection and storage locations
- Require a C&D waste report documenting collection methods, material types, recovered weight, and recipient(s) of the material



Construction Waste Management Plan

A construction waste management plan generally covers:

- Materials collected (types, weight/volume)
- Collection methods and material management (e.g., onsite sorting or commingling; onsite processing [compacting, crushing, baling])
- Material disposition (receivers of materials)
- Designation of responsible parties for C&D data collection and reporting process
- Reporting frequency (e.g., monthly)
- Education of and signage for contractors and subcontractors
- Compliance monitoring



Data Collection and Recordkeeping

Maintain verifiable records to support Executive Order compliance reporting and LEED submissions:

- Designate a C&D waste data coordinator
- Identify collection and salvaging methods
- Record:
 - Materials recovered, by waste stream
 - Material disposition (receivers of materials)
 - Quantities of each waste stream diverted/recycled
 - Quantities of non-diverted/non-recycled materials
- Keep data reporting current (e.g., monthly)
- Maintain verification of performance (e.g., bills of lading, tipping receipts)
- Consider C&D waste tracking software



Waste Tracking Software

- Waste tracking software is available



Example Metrics

- Biology Wing Renovation (2010-2011) at EPA's Region 10 Laboratory, Manchester, WA

Waste Stream	Weight (tons)	Monies (\$) + = profit - = cost
Salvaged waste	27.06	+ \$4,844.75
Recycled waste	11.09	- \$325.11
Landfilled waste	32.34	- \$3,326.85
TOTAL	70.49	+ \$1,192.79

- C&D Waste Diversion Rate = $\frac{\text{Salvaged} + \text{Recycled}}{\text{Total Waste}} = 54\%$
- Cost of \$4,372.41 if all waste had been landfilled



Successful C&D Waste Diversion Helps with LEED

- Renovation of McCormack Post Office and Courthouse achieved a C&D waste diversion rate greater than 75 percent
- Earned 2 credits under LEED for New Construction

FINAL LEED® SCORECARD FOR THE JOHN W. MCCORMACK POST OFFICE AND COURTHOUSE, BOSTON, MASSACHUSETTS				
Certification Earned: LEED-NC 2.2 Gold				
The LEED Scorecard provides an itemized account of the specific green building criteria met through the design and renovation of the McCormack POCH. Based on these criteria, the facility earned 43 of 69 possible points and achieved LEED for New Construction Version 2.2 Gold certification.				
43	Points Documented			Points Available: 69
11	Sustainable Sites			Possible Points: 16
Yes	Prerequisite 1	Construction Activity Pollution Prevention		
1	Credit 1	Site Selection	1	
1	Credit 2	Development Density & Community Connectivity	1	
1	Credit 3	Smartfield Redevelopment	1	
1	Credit 4.1	Alternative Transportation: Public Transportation Access	1	
1	Credit 4.2	Alternative Transportation: Bicycle Storage & Changing Rooms	1	
1	Credit 4.3	Alternative Transportation: Low-Emitting & Fuel Efficient Vehicles	1	
1	Credit 4.4	Alternative Transportation: Parking Capacity	1	
6	Materials & Resources			Possible Points: 13
Yes	Prerequisite 1	Storage & Collection of Recyclables		
2	Credit 1.1-1.2	Building Reuse	2	
1	Credit 1.3	Building Reuse, Non-Structural	1	
2	Credit 2.1-2.2	Construction Waste Management	2	
2	Credit 3	Resource Reuse	2	
1	Credit 4	Recycled Content	2	
1	Credit 5	Regional Materials	2	
	Credit 6	Rapidly Renewable Materials	1	
	Credit 7	Certified Wood	1	



Salvage/Deconstruction Considerations

- Deconstruct to salvage items of value such as:
 - Historic components
 - Architectural details
 - Old growth hardwood windows and doors
 - Working HVAC equipment
- Net out value of salvage from demolition/deconstruction contract



Salvage/Deconstruction Considerations

- Follow the legal requirements for the disposition of federal assets
 - Under the Federal Property & Administrative Services Act, property can be:
 - Transferred from one agency to another
 - Excessed via discount conveyance to state and local governments for public benefits
 - Sold via negotiated sale to state and local governments
 - Sold to the public via competitive sales
 - Donated to a charitable organization (e.g., Habitat ReStore)



Universal and Hazardous C&D Wastes

- Demolition might require special handling of universal and hazardous wastes (RCRA 40 CFR 260-280 and TSCA 40 CFR 761)
 - Asbestos
 - Lead-based paint
 - Mercury-containing ballasts, thermometers, and switches
 - PCB-containing components (e.g., switches, capacitors, transformers, fluorescent lamp ballasts)
 - Used solvents
 - Fluorescent lamps (whole or broken)
 - Underground storage tanks



C&D Waste Diversion Tools

- **Construction Waste Management Plan** – GSA Boston, McCormack Post Office and Courthouse
- **EPA A&E Guidelines** – EPA policy and standards for architects/engineers for the design and construction of EPA facilities
- **GSA Solicitation for Offers** – C&D excerpts
- **EPA Best Practice (Environmental) Lease Provisions** – C&D excerpts to be used in GSA space acquisitions for EPA
- **EPA Renovations and Alterations Guidelines** – Sustainable renovations and alterations standards for use after initial construction/build-out in the ongoing operations and maintenance contracts of facilities



Other Resources

EPA Construction and Demolition Materials Website

(<http://www.epa.gov/wastes/conserves/rrr/imr/cdm/index.htm>)

GSA Property Disposal Resource Center

(<https://extportal.pbs.gsa.gov/ResourceCenter/content/home.do>)

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Questions?

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